



MINISTRY OF EDUCATION
WELSH DEPARTMENT

Report of the Advisory Panel on the
Provision of Advanced Technical Education
at the Technical Colleges at Wrexham,
Denbighshire and Kelsterton,
Flintshire

LONDON

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ONE SHILLING NET

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FOREWORD

I am grateful to Sir Hugh Chance and his colleagues for their report. They were eminently qualified to undertake this task and their recommendations carry great weight and authority.

GEOFFREY LLOYD.

The estimated cost of the preparation of this Report is £82 4s. 1d. of which £45 14s. 9d. represents the estimated cost of printing and publishing.

*To the Right Honourable Geoffrey Lloyd, M.P.,
Minister of Education*

In August, 1957, your predecessor, Viscount Hailsham, set up a Panel to make recommendations for the efficient and economical provision of advanced level courses at the Technical Colleges at Wrexham, Denbighshire and Kelsterton, Flintshire. The Panel's terms of reference were:—

"to consider the present and proposed provision of advanced full-time and part-time courses at the Technical Colleges at Wrexham and Kelsterton and to make recommendations for the efficient and economical provision of advanced courses at these colleges in the light of the Government's White Paper on Technical Education and subsequent relevant circulars and administrative memoranda of the Ministry of Education and of relevant courses existing or proposed elsewhere."

In submitting our Report, we wish to express our thanks to all those who supplied evidence to us; to the Local Education Authorities and Governing Bodies who so readily made arrangements for us to visit the two colleges and the neighbouring Chester College of Further Education; and to the representatives of industry with whom we discussed the needs and problems of their students. We are particularly grateful to our Secretary, Mr. Herzig, who has been indefatigable in collecting evidence, preparing memoranda and generally acting as staff officer to the Panel.

(Signed) HUGH CHANCE (*Chairman*).
E. WILLIAMS.
E. W. WOODHEAD.

27th February, 1958.

I. INTRODUCTION

1. We were required by our terms of reference to consider among other things the White Paper on Technical Education and subsequent relevant circulars and administrative memoranda of the Ministry of Education. The publication of the White Paper was followed by that of Ministry of Education Circular 305 in June, 1956. This suggested a pattern for the expansion of technical education within a broad structure composed of local colleges, area colleges, regional colleges and colleges of advanced technology. The Circular envisaged local colleges as providing, so far as vocational courses were concerned, mainly part-time courses up to the level of the Ordinary National Certificate or its equivalent. Area colleges were to be encouraged to strengthen and expand part-time courses at all levels and to retain existing full-time and sandwich courses so long as they remained efficient and economical, but to provide new advanced level full-time and sandwich courses only in exceptional circumstances.

2. In March, 1957, the Minister announced to Local Education Authorities in Administrative Memorandum 545 that he had accepted in its entirety the Report of a Working Party on Procedure for Approval of Further Education Courses; the procedure it recommended was brought into effect on 1st April, 1957. The recommendations of this Report covered technical and commercial courses and contained the following:—

- (a) A new definition of the categories of courses requiring prior approval of the Ministry.
- (b) A new procedure for the prior approval of courses.
- (c) Criteria governing applications for approval of new courses.
- (d) A procedure for the review in the light of the criteria recommended, of courses already in existence at the time of the Report, and for possible termination of Ministry approval for some of them.

In elaborating the criteria mentioned in (c) and (d) above, the Working Party made the following recommendations which we have found especially relevant to our enquiry:—

- (a) There should be a minimum annual enrolment during the first year of operation of ten first year students for a Mechanical or Electrical Engineering course, rising to at least fifteen first year enrolments by the third year of operation.
- (b) For courses in other subjects, six and ten should be substituted for ten and fifteen above.
- (c) In the case of part-time courses it should be open to Local Education Authorities to submit courses for approval with lower attendances than the general minima where no alternative course was available within reasonable travelling distance.
- (d) An area college wishing to start an advanced level full-time or sandwich course in Mechanical or Electrical Engineering should be required to produce the minimum continued annual recruitment of fifteen first year students mentioned in paragraph 10 of Circular 305. For similar courses in other subjects the minimum annual recruitment should be ten first year students.

- (e) In general, a college should not be entitled as of right to run a particular course because it could secure the recommended minimum enrolment; account should be taken of the pattern and strength of other similar courses elsewhere.

3. We have approached our task against the background of these and other recent pronouncements of a broad national policy for the co-ordinated expansion and development of technical education. In considering in this context proposals by Local Education Authorities for advanced level courses at individual colleges, we have deemed it essential to take into account the following main factors:—

- (a) the requirements of the students ;
- (b) the requirements of industry both at the present and as far ahead as can be foreseen ;
- (c) the present facilities in the colleges and the plans of Local Education Authorities for their development ;
- (d) economy and efficiency in the use of staff and in the provision of accommodation and equipment ;
- (e) alternative suitable courses provided or proposed elsewhere.

None of these interacting factors can be given overriding priority ; we think however that the first two should unquestionably be in the forefront of the minds of those who are planning and providing facilities for technical education.

4. We have chiefly reviewed in relation to the two colleges, senior and advanced level courses leading to National Certificates, National Diplomas, College Diplomas and Examinations of Professional Institutions in the technologies of Mining, Engineering (including Instrumentation Engineering), Chemistry, Metallurgy, Building and Applied Physics. We confine our recommendations to existing and proposed advanced level courses in these technologies ; these recommendations do not however affect provision at the two colleges of advanced level technical courses of the kind leading to the Final and Full Technological Certificates of the City and Guilds of London Institute, on which we offer no comments.

II. THE MAIN ELEMENTS IN THE PRESENT AND FUTURE SITUATION AT THE TWO COLLEGES

Brief description of the Colleges

5. We understand that the nucleus of the present college at Wrexham is to be found in that established in 1927 in buildings which are still in use by the present Mining and Engineering Departments, and that the origins of the present college at Kelsterton lie in classes conducted in small technical institutes. The erection and equipment of extensive new buildings for both colleges proceeded concurrently after the war at a capital cost in each case of some £500,000 (rather more in the case of Wrexham). Both colleges came into full existence in their present form in 1954 and are fifteen miles apart. The new buildings have enabled both to embark on a large variety of further education work, much of it below advanced level. That provided at Wrexham includes Engineering, Building, Mining, Chemistry, Commerce, Bakery, Domestic Science and Catering, Music, Art and Crafts, Dramatic-Art and Physical Training ; that at Kelsterton includes Engineering, Building, Chemistry, Metallurgy, Domestic Science, Commerce, Art and Crafts and Physical Education. At Wrexham a secondary technical school is housed in

the Technical College premises and at Kelsterton there is a "County College" Department providing courses in compulsory and elective subjects of the kind associated with day continuation schools. Both colleges have set out to make what is clearly valuable provision to meet the general need of their localities for further education and their buildings were planned with this aim in mind; indeed we formed the impression from visiting the buildings of the Kelsterton College that much more emphasis had been placed in planning facilities for recreation and social life and for general educational and cultural facilities for the neighbourhood than on provision for specifically technical work. The name "College of Further Education" conveys more adequately than does "Technical College" an impression of the variety of work done at both Colleges.

Catchment Areas

6. Elsewhere in the six North Wales counties of Denbighshire, Flintshire, Anglesey, Caernarvonshire, Montgomeryshire and Merioneth, there are local institutes or colleges at Holyhead, Bangor, Pwllheli, Colwyn Bay and Newtown, and there is a catering school at Llandudno. Extensive new buildings for the developing College of Further Education at Chester (some nine miles from Kelsterton and some twelve miles from Wrexham) are now partially in use or under construction. New buildings are also under construction at the College at Carlett Park established since the war in Cheshire midway between Chester and Birkenhead. The bulk of the students at Wrexham comes from Denbighshire and the number of students at Kelsterton resident outside Flintshire does not reach significant proportions in relation to the total number of students attending. The two colleges are however the only ones in the six North Wales counties and in the parts of Cheshire (including Chester) and Shropshire immediately adjacent to Denbighshire and Flintshire providing advanced level technical courses of the kind under review. Some out-county students are found in senior level courses, but more proportionately in those of advanced level; in certain advanced level courses at Wrexham in particular out-county students account for a very significant proportion of the total enrolments.

Employment of Students

7. The two colleges draw students from a large number of industrial undertakings but the great majority of those in the courses under review are employed in the following undertakings:—

Denbighshire

British Celanese;
Monsanto Chemicals;
Rubery Owen (Engineers);
Brymbo Steel Works.

Flintshire

John Summers, Iron Founders;
Courtaulds;
De Havillands.

Undertakings operating in both counties.

National Coal Board;
Merseyside and North Wales
Electricity Board;
Central Electricity Generating
Board.

Cheshire

Brookhirst Switchgear, Chester;
Shell Refining Company, Stanlow,
Wirral.

We took evidence direct from all these undertakings so as to learn their expected future requirements for the education of their employees. This and other evidence supplied to us suggests that these undertakings are likely to continue, in the foreseeable future, to be the main potential source of students for advanced level courses in the area.

Future changes in volume and character of industry in North Wales

8. The establishment of subsidiary production plants unaccompanied by design and research units does not of itself lead to a significant continuing requirement from industry for personnel to be trained locally through advanced level courses of the kind under review. The evidence which we have been able to collect suggests that the great majority of likely future developments of industry in the six counties, associated as they often may be with measures to counteract unemployment and depopulation, will tend to take the form of subsidiary production units. We understand in particular that the projected new plant of Messrs. Stewarts and Lloyds at Shotton and the projected electricity generating plant at Trawsfynydd in Merioneth and Edeyrn in Caernarvonshire are not expected by the promoters of these developments to lead to any significant demand for provision of facilities for advanced level courses. As has been mentioned, we took evidence direct from the industrial undertakings listed in paragraph 7 above; other undertakings operating within the colleges' catchment area also supplied evidence to us. All showed a genuine concern for the training and education of their employees. In the result we had no evidence that any marked decline in demand for advanced courses from these undertakings was to be expected; on the other hand, it appeared that most expected their future demand to be either much the same as now or but little increased.

Transport facilities in relation to the convenience of students

9. We mention at this point the hostel facilities which already exist at both colleges. At the time of our visit there were 30 students in the hostel at Wrexham and 65 in that at Kelsterton. At both colleges there appears to be ample room on sites already acquired for extension of hostels if necessary. There is likely to be a continuing need for residential accommodation at both colleges for full-time and (more often) part-time students living in other North Wales counties outside reach of daily travel, though we had no evidence to suggest that the needs of these students alone are likely to make extensions to the hostels necessary in the near future. The presence of hostels at any college is not, of course, by itself a factor in favour of establishment of advanced level sandwich courses, and we had evidence from industrial firms that they were, for their part, ready to send students further afield if it appeared that a course provided outside the area would best meet the educational requirements of the students and the firms' needs. But, as will appear later in the Report, there is some doubt about the degree of industrial support for the two sandwich courses, one at each college, already established, and we had no evidence that local firms were ready and able to support with an assured continuous flow of suitable students new sandwich courses at either college. Moreover we do not consider that the provision of sandwich courses at either college is justified for "college based" students unaccompanied by such a flow.

10. On public transport within Denbighshire and Flintshire and the adjoining parts of Cheshire, Shropshire, Merioneth, and Caernarvonshire we were able to collect much evidence. It is doubtful whether public transport facilities are generally such as to permit attendance at either college of part-time students who live in North Wales but outside this area and who have to start from home and return home on the same day. Kelsterton, situated as it is on the main Deeside road, is easily accessible from places in Flintshire along it as far as Rhyl and from Chester, and more accessible than Wrexham from places in the hinterland of the coast road and from places in the Wirral north of a line drawn east and west through Chester. For places west of Rhyl, Kelsterton involves a long journey with changes

owing to the absence of through buses and adequate trains stopping at the nearest station, Connah's Quay, three-quarters of a mile away. The Wrexham college is close to the railway station with a good service to Chester; there are reasonable bus services to the town's extensive hinterland. For much of the area Chester is the natural centre of main lines of communication. Part of the new buildings for the college there is now in use and the remainder will be completed in the next few years; they are easily accessible for students arriving in the city by bus or train. We are satisfied in general that taking into account the area of residence of the great majority of students attending the Wrexham and Kelsterton Colleges, difficulties of access for students are not in themselves sufficient to stand in the way of a more concentrated distribution of courses between the two colleges. There is also, in our judgment, insufficient evidence to justify the establishment of new courses or abate significantly the minimum enrolment requirements recommended by the Working Party wholly or mainly on account of travel difficulties.

Consideration of the specific courses under review

11.—(a) *Mining*

We were informed by the National Coal Board that there is only one active colliery in Flintshire at Point of Ayr, employing some 800 workers. Collieries in Denbighshire employ some 6,900 workers and that at Ifton in Shropshire not far from the Denbighshire border, some 1,300 workers. Wrexham is now the centre for all mining courses.

(b) *Metallurgy*

Kelsterton has long provided the only part-time advanced level courses in the area; a Higher National Certificate course and a Post Higher National Certificate course are now in existence. The Denbighshire Authority told us that they were ready to continue the present arrangement by which advanced level students from that county are enabled to attend at Kelsterton. The Flintshire Authority have proposed to run a sandwich course in this subject.

Support for the present courses is largely derived from Messrs. John Summers's steelworks close to the College; a much smaller degree of support is drawn from other firms, notably the Brymbo Steel Works in Denbighshire. Enrolments in the advanced level courses do not reach the minima recommended by the Working Party, and those at the lower level do not yet give promise of future increase at the advanced level sufficient to guarantee these minima. Evidence was given to us by both the firms named of future expansion likely to lead to small increases in the numbers of students at advanced level; we had however none of a continuing large requirement for the products of the existing courses and none that local firms were able to support the proposed sandwich course with a flow of sufficient suitable students.

We think that staff and equipment are adequate for the existing courses; it appears to us doubtful whether the former in particular is adequate for the proposed sandwich course. Though existing provision is expensive for the small number of students attending, we are satisfied that it is necessary provision to meet the needs of local industry; there is, we understand, at present no similar part-time provision nearer than Manchester, which cannot be regarded as conveniently accessible for part-time students from the area.

(c) *Building*

Ordinary National Certificate courses are now provided in both colleges; the Wrexham College provides the only Higher National Certificate course

and it is run in the evening. The Flintshire Authority have proposed to provide a similar course at Kelsterton. A very large spread of firms supplies students to courses at both Colleges but the existing Higher National Certificate course is barely supported and enrolments lower down give little promise of better support.

(d) *Engineering*

Kelsterton now conducts courses for Ordinary National Certificates in Mechanical and Electrical Engineering and the A.1. year only of Higher National Certificate courses in these subjects. Wrexham conducts courses for Ordinary National Certificates in Mechanical and Electrical Engineering and full Higher National Certificate courses in these subjects. Additional Higher National Certificate courses, one in Mechanical Engineering with a Production element and one in Production Engineering, are also run at Wrexham.

The Flintshire Authority have proposed to run sandwich courses in Mechanical and Electrical Engineering leading to College Diplomas ; at Wrexham a sandwich course leading to the Higher National Diploma in Mechanical Engineering is now in its second year of operation, and the Denbighshire Authority have proposed to run a similar course in Electrical Engineering.

There is evidence that support for the basic courses at Ordinary National Certificate level in Mechanical and Electrical Engineering is now assured and is likely to continue to be assured at both colleges from a widespread demand from local industry for these courses. The position is however very different in the existing Higher National Certificate courses, despite the "protection" of them which has been enforced. At Kelsterton, minimum numbers in the A.1 years of "straight" Mechanical and Electrical Engineering courses are barely sustained. At Wrexham, despite the absence of the A.2 year at Kelsterton and of other Higher National Certificate courses in North Wales, Chester and the immediately adjacent parts of Cheshire and Shropshire, only the "straight" Mechanical Engineering course at present contains the minimum numbers out of all the Higher National Certificate courses. The existing Higher National Diploma Sandwich course in Mechanical Engineering does not contain the minimum numbers recommended by the Working Party for such a course conducted at an area college, and the effect of its continued operation on enrolments in the Higher National Certificate courses will, in our view, need careful watching.

The evidence we obtained from industrial organisations in the whole area points to a small increase, but no more, in the future demand for Higher National Certificate courses : we had no evidence that industry was able to support with a continuing annual requirement sandwich courses at either college.

In our opinion, the college at Wrexham is adequately provided with accommodation and, generally, with equipment for the existing courses and for the proposed electrical engineering sandwich course ; staff may need some strengthening and some additional equipment may be required for electronics. At Kelsterton, we had ample evidence to show that considerable additions would be required to staff, accommodation and equipment if the proposed sandwich courses were to be run, and it is apparent that staff would need to be strengthened even if only the A.2 year of Higher National Certificate courses in Mechanical and Electrical Engineering were run.

We are, with the Working Party, convinced that capacity to find sufficient students to feed a course with the minimum recommended numbers should not of itself entitle a college to run the course. We regard it as most important that a variety of subjects should, wherever possible, be offered in engineering

courses and we have taken due note of evidence supplied to us that the present and likely future requirements of the mining industry make it desirable to conduct alongside mining courses, courses to advanced level in engineering. Further evidence supplied to us was unanimous in condemning as educationally unsatisfactory the present situation in which students who have taken the A.1 year at Kelsterton are obliged to attend elsewhere for the A.2 year ; we strongly endorse this view.

The balance of all these factors clearly, in our judgment, points to Wrexham as the centre for the North Wales counties for advanced level engineering studies of the kind under review. That one third of the present students in the existing Higher National Certificate courses at Wrexham are resident in Chester or adjoining parts of Cheshire should be noted ; we had no evidence that would suggest any great change in the immediate future in the pattern of students' residence.

(e) Instrumentation Engineering and Applied Physics

The only relevant existing course in the two colleges is that for Ordinary National Certificate in Applied Physics at Kelsterton which is we understand, reaching the S.3 year for the first time in the current session. The Flintshire Authority have proposed to run a sandwich course in these subjects.

We had evidence that additional staff, accommodation and equipment would be required if this course were to run ; on the other hand the evidence supplied to us by industrial organisations indicated no clear continuing support for the course with adequate numbers of students. It is highly desirable, in our view, which was supported by evidence from local industry, that such a course should only be established in a college with considerable experience of advanced courses in Applied Physics and Electrical Engineering.

(f) Chemistry

Courses leading to Ordinary and Higher National Certificates are conducted at both colleges. At Wrexham there is in addition a part-time day course for Graduateship examinations of the Royal Institute of Chemistry. At Kelsterton there is a part-time day course now in its second year together with a 3-year sandwich course, likewise in the second year of operation. In these courses also, students are prepared for the Graduateship examinations of the Royal Institute of Chemistry.

Events in recent years have apparently led to a duplication at Kelsterton of facilities already existing at Wrexham and we believe that this is a matter for regret. In the majority of the courses numbers at present reach the Working Party's minima at both colleges, though the establishment of advanced level courses at Kelsterton has adversely affected similar provision at Wrexham. Evidence from industrial organisations points to little or no increase at advanced level, and we think that it is too early to assess the final effects on either college of the recent establishment of advanced level courses at the Carlett Park College in Cheshire. Some uncertainty marks the degree of support likely to be given in future by the now united organisation of Messrs. Courtaulds and British Celanese who have hitherto supplied many of the students ; we were also informed that Courtaulds were not able to support the existing sandwich course at Kelsterton since their establishments in the locality do not require personnel thus trained.

Staff, accommodation and equipment appeared to us to be satisfactory at both colleges, though the staff at Kelsterton remains to be fully tried in the work of preparing students for the examinations of the Royal Institute of Chemistry, which are of an extremely high standard. In these courses in particular, it is essential that the academic attainments of students admitted should be sufficiently high to give them a reasonable hope of success in the examinations.

III. GENERAL COMMENTS AND CONCLUSIONS

12. We have received much evidence of the history of events leading to the constitution of the Panel and we make our recommendations after full consideration of this evidence. It will, in our judgment, serve no useful purpose to rehearse again the story of these events, and it appears to us that, in considering the future provision of advanced level courses at the two colleges, our chief concern must be to apply the factors enumerated in paragraph 3 of our Report to the main elements in the present and future situation at the two colleges as we have described them above. We feel obliged nevertheless to place on record our view that past events have led to an unsatisfactory situation, in which the following have played a part:—

- (a) changes in the location and type of industry ;
- (b) failure to plan provision for technical education on a sufficiently broad geographical basis. There has been a regrettable lack of co-operation between the neighbouring counties of Flintshire and Denbighshire and there has been no mechanism for consultation and collaboration with the most important area bordering their eastern boundaries, namely Cheshire and Chester ;
- (c) personal antipathies and rivalries ; accusations of bad faith ; and unwillingness to regard the interests of the students as a dominant factor in a complex situation.

In the result Denbighshire have been encouraged to proceed with a large building scheme on the presumption that at any rate the greater part of the advanced level work would be concentrated at Wrexham. Flintshire have been over-optimistic in planning their new college, and, in their schemes for its development and their demand to the right to undertake advanced level work without regard to the interest of other Authorities, they now find themselves overtaken by recent definitions of national policy for the co-ordinated expansion of technical education. Developments have been proceeding at Chester and Carlett Park which can well have effects on the work of the colleges at Wrexham and Kelsterton. All the evidence points to a lack of balance in provision of facilities, irritation on the part of industry and bewilderment on the part of students. The absence of a liberal policy for vouchering out-county students causes unnecessary hardship ; students can often thus be prevented from attending the centre most convenient to their homes. For instance, students working in or near Chester, whose homes are a few miles outside the City, but in the County of Flintshire, are required to take their courses at Kelsterton although Chester may provide equivalent and more convenient facilities.

13. Changing demands and industrial developments require constant survey and review of facilities if technical education is to be adequately provided. The interests of the students and the needs of industry are the strongest of reasons for subordinating local pride and ambition to regional collaboration and for replacing friction by friendly co-operation.

14. We have given careful consideration to suggestions contained in evidence supplied to us that a Joint Committee representative of the Denbighshire and Flintshire Authorities and possibly other Authorities in North Wales might be set up to govern the two colleges. We are in sympathy with the spirit which prompted these suggestions though we do not feel able to recommend the establishment of a Joint Committee as a practicable proposition at the present stage.

15. If we could start completely afresh Chester would, we think, have a strong claim, so far as communications are concerned, to be the centre of

advanced level work in the area, with contributory courses at Wrexham and Kelsterton. Existing provision at the two colleges must however be taken into account; very large sums have been sunk in them both for buildings and for equipment and in other ways.

16. We have very fully considered evidence submitted to us in favour of a system of using peripatetic teachers to provide a greater variety of courses, or parts of them, at a sufficient number of centres in North Wales to reduce to the barest minimum inconvenience to students and industry caused by attendance for advanced level courses at the two colleges. This degree of flexibility of provision is however, as it seems to us, unattainable in present circumstances. Indeed, to conserve resources in staff, accommodation and equipment, and to avoid small classes and lack of variety of alternative subjects in courses, some concentration of courses is, in our view, inescapable, even if this means closure of existing courses and additional travelling for some students.

17. We are however persuaded that travelling difficulties can greatly be minimised by relatively simple and inexpensive provision of travelling facilities. The Coal Board for example collects its students from as far distant as Abergele and takes them to Wrexham. The provision of a small bus running for instance between towns and villages on Deeside and in its hinterland and Wrexham, and some alterations in times of classes, could reduce present travelling difficulties to a minimum.

IV. RECOMMENDATIONS

18. The recommendations we now submit define the way in which, in our judgment, the two colleges should develop within the framework of the national policy for a co-ordinated expansion of technical education as particularly expressed in Circular 305 and the Report of the Working Party on Procedure for Approval of Further Education Courses. Were it not for the long-standing courses in metallurgy and the perhaps premature approval of advanced courses in chemistry there, we should regard Kelsterton as best conceived at this stage as a local college. We think that its most profitable opportunities for development lie in the field of adult education and in its "County College" department. Wrexham on the other hand has ample claims to the status of an area college. In proportion as advanced level work develops there consideration will in our view need to be given to the rehousing elsewhere of the secondary technical school and to the progressive shedding of lower level work.

19. *We recommend that:—*

(1) Until a second centre for advanced level work is justified within the terms of the Working Party Report, Wrexham should, except in metallurgy, have priority;

(2) in the technologies of mining, building and engineering of all kinds Wrexham should be regarded as the only centre in the two counties for all work at the advanced level;

(3) consideration should be given to the approval of the proposed Higher National Diploma sandwich course in electrical engineering at Wrexham but only if there is a firm prospect—as there does not seem to be at present—of a continuing minimum enrolment of fifteen first year students; the effect of the establishment of the course on enrolments in Higher National Certificate courses should also be taken into account;

(4) the proposed sandwich courses in mechanical and electrical engineering and instrumentation engineering and applied physics, and the proposed Higher National Certificate course in building at Kelsterton should not be approved ;

(5) approval should be withdrawn from the A.1 years of the Higher National Certificate mechanical and electrical engineering courses at Kelsterton ;

(6) Kelsterton should remain the sole centre for advanced courses in metallurgy in the two counties, and it is in our view desirable that it should also serve as the centre for these courses for those students from Cheshire and the Wirral who can most conveniently attend it ; we find however that there is not yet sufficient justification for the proposed sandwich course in the subject and recommend that it be not approved ;

(7) in view of the educational link between chemistry and metallurgy, advanced courses in chemistry should continue at Kelsterton as well as at Wrexham, subject to review in the light of the principles and procedure laid down in the Working Party's Report. The existing sandwich course at Kelsterton in particular should not continue to receive approval if a sufficient continuous enrolment of suitably qualified entrants with reasonable prospects of success cannot be assured ;

(8) particularly in view of recommendations (1) and (2) above, the composition of the present Governing Body and Advisory Committees of the Wrexham College should be reviewed so as to ensure that industry and Local Education Authorities in the area round Denbighshire are appropriately represented ;

(9) consideration should be given by the Denbighshire and Flintshire Local Education Authorities to the provision of such special transport facilities as are required to facilitate the attendance of students at the Wrexham College with immediate reference to building and engineering courses ;

(10) unless and until a comprehensive system of " free trade " is brought into operation, a liberal system of vouchering out-county students should be introduced by the Denbighshire and Flintshire Local Education Authorities ;

(11) permanent and effective machinery for consultation between the Welsh Joint Education Committee and the North-Western Regional Advisory Council for Further Education should be instituted as a means of ensuring adequate provision for students coupled with economical use of scarce, highly qualified staff and of equipment and accommodation. If this machinery takes the form of a committee for the distribution of advanced level courses, we should be strongly in favour of the appointment of an independent chairman of the committee.

APPENDIX

List of bodies who supplied oral or written evidence to the Panel

- The Local Education Authorities for Flintshire and Denbighshire.
- The Welsh Joint Education Committee.
- The Ministry of Education.
- The Board of Trade.
- The Industrial Association of Wales and Monmouthshire.
- The Welsh Board for Industry.
- The North-Western Regional Advisory Council for Further Education.
- The Council of the Federation of British Industries in the North-West Region.

The following industrial undertakings:—

- Saunders Roe (Anglesey) Ltd.
- British Celanese Ltd.
- Monsanto Chemicals Ltd.
- Rubery, Owen and Co. Ltd.
- Brymbo Steel Works Ltd.
- Hughes and Lancaster (Air Products G.B.) Ltd.
- De Havilland Aircraft Company Ltd.
- John Summers and Sons Ltd.
- Darwen and Mostyn Iron Company Ltd.
- Courtaulds Ltd.
- Stewarts and Lloyds Ltd.
- Shell Refining Company Ltd.
- Brookhirst Switchgear Ltd.
- Williams and Williams Ltd.
- The National Coal Board (North Western Division, No. 5 (North Wales) Area).
- The United Kingdom Atomic Energy Authority.
- The Merseyside and North Wales Electricity Board.
- The Central Electricity Generating Board.

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